

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
25 August 2005 (25.08.2005)

PCT

(10) International Publication Number
WO 2005/078692 A1

(51) International Patent Classification⁷:

G09G 3/34

(21) International Application Number:

PCT/IB2005/050501

(22) International Filing Date: 8 February 2005 (08.02.2005)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/543,730 11 February 2004 (11.02.2004) US

(71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS, N.V.** [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(71) Applicant (for AE only): **U.S. PHILIPS CORPORATION** [US/US]; 1251 Avenue of the Americas, New York, NY 10020 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ZHOU, Guofu** [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL). **JOHNSON, Mark T.** [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

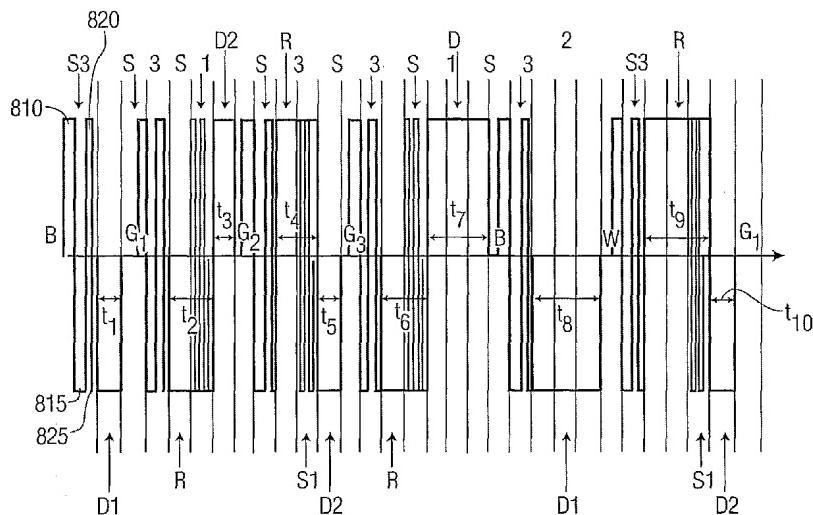
(74) Common Representative: **KONINKLIJKE PHILIPS ELECTRONICS, N.V.**; c/o Frank Keegan P.O. Box 3001, Briarcliff Manor, NY 10510-8001 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: ELECTROPHORETIC DISPLAY WITH CYCLIC RAIL STABILIZATION



(57) Abstract: An image is updated on a bi-stable display (310) such as an electrophoretic display by using cyclic rail-stabilized driving, where an image transition is realized either directly via a single drive pulse (D1), or indirectly via a reset pulse (R) and a drive pulse (D2) of opposite polarity. First shaking pulses (S1) are applied to the bi-stable display, when the at least one image transition is realized indirectly, e.g., during at least a portion of the reset pulse and/or the drive pulse of opposite polarity. Furthermore, second shaking pulses (S2) are applied prior to the single drive pulse, or prior to the reset pulse and the drive pulse of opposite polarity. The shaking pulses in either case may include initial shaking pulses (810, 820) and final shaking pulses (815, 825), which have a reduced energy.

WO 2005/078692 A1



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA,*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations*

Published:

- *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.